SELECTIONS FROM THE RECORDS OF THE OFFICE OF THE FINANCIAL COMMISSIONER, PANJAB.

PUBLISHED BY AUTHORITY.

No. 14.

[Prin]ted by W. E. Ball, Successor to the Panjab Printing Company.

MDCCCLXXIII.

XLII.—THE SUPPLY OF SHEEP IN THE PANJAB.

From the Superintendent, Hissár Cattle Farm, to the Superintendent of Studs, Mussoorie, No. 145, dated 12th August 1872.

I have the honor to acknowledge the receipt of your office No. 836, dated the 31st of July 1872, and beg to state that the various importations of Rams and Ewes was as follows :—

FROM ENGLAND.

2 South Down Rams in March 1864.

6 Leicester Rams in December 1864.

9 Leicester Ewes in December 1864.

FROM AUSTRALIA.

2 Merino Rams (Long Horns) in March 1868.	
1 Merino Ram (Short Horns) in	Do.
2 Cotswolds Rams	Do.
2 South Down Rams	Do.
1 Leicester Ram	Do.

2. The annexed statements will shew the experiments and crosses that have been tried, and the number and breeds of the present stock now at the Farm, together with a total of the births, deaths, &c. since the commencement of the sheep breeding.

3. The original breed commenced with the cross between the imported South Down Ram and the Bikanír Ewe, and with the Rams imported from Australia in 1868, the breed has been kept up. The cross between the South Down and Leicester Ram and the Bikanír Ewe and their produce seem to be the best, being short legged, well shaped, compact and fleecy animals.

4. The Leicester cross though woolly is long, large and leggy. The Merino cross is considered too small. Fourteen Bikanír Ewes were tripped by an Affghan Doombalo, but the cross did not seem to answer.

5. The statement annexed will fully answer the 2nd para. of your letter under reply shewing—

89 Rams now ready for distribution.

200	Rams expected to be ready in		October 1872.
150	Do.	Do.	October 1873.
150	Do.	Do.	October 1874.

6. The sheep are in pens. They are sent out during the day to graze about 80 in a flock and at night the Rams are turned in with them. They are weeded twice a year as also shorn, and the rejected ones and wool being sold for the good of Government. The former fetch a very bad price here indeed but the latter is increasing in value every year.

7. I regret I am unable to answer your para. 8, for once the Rams leave the Farm nothing is again heard of them.

P. S.—In reply to para. 5 of your letter, I would state that a Bikanír Ewe is the only country Ewe that has been purchased for sheep breeding at the Farm.

Statement shewing the number and different Breeds of sheep at the Government Cattle Farm at Hissár.

Number.	Sex.	Breed of Ewe from which the animal was got.	Breed of Ram from which the animal was got.	Remarks.
		Ewes.		
34	Ewes,	½ Leicester, ...	Merino Rams, ...	The Ewes have 41 Male and 73 Female Lambs at Foot.
31	do.,	½ South Down, ...	Cotswolds Rams, ...	
60	do.,	Bikanír, ...	Bikanír, ...	
25	do.,	Bikanír, ...	½ Lec. out of ½ S. D. Ewes,	
49	do.,	Bikanír, ...	South Down, ...	
275	do.,	2nd Cross South Down,	South Down, ...	
1	do.,	Bikanír, ...	Cabúl Ram, ...	
75	do.,	Bikanír, ...	Leicester Ram, ...	
47	do.,	½ South Down, ...	South Down, ...	
		Making a Total of 597 Ewes.		
		Rams.		
3	Rams,	½ Leicester, ...	Merino Rams, ...	89 of these Rams are now available for District purposes.
1	do.,	½ South Down, ...	Cotswolds, ...	
2	do.,	Do. Do., ...	Half Leicester, ...	
2	do.,	2nd Cross South Down,	South Down, ...	
19	do.,	Bikanír, ...	Do. Do., ...	
4	do.,	Bikanír, ...	Leicester, ...	
48	do.,	Bikanír, ...	½ South Down, ...	
7	do.,	Bikanír, ...	½ Leicester, ...	
10	do.,	3rd Cross South Down,	Leicester, ...	
11	do.,	½ Leicester, ...	South Down, ...	
		Making a Total of 107 Rams.		
		Male Lambs.		
45	Male Lambs,	Bikanír, ...	South Down, ...	Two hundred of these Lambs will be ready for district use in October 1872, about 150 in Octr. 1873 & 150 in Octr. 1874.
95	do.,	3rd Cross South Down,	Do. Do., ...	
22	do.,	½ South Down, ...	Cotswolds, ...	
51	do.,	½ Leicester, ...	Leicester, ...	
52	do.,	Bikanír, ...	½ Leicester, ...	
12	do.,	½ Leicester, ...	Merino, ...	
8	do.,	½ Leicester by Merino,	½ Leicester by Merino,	
66	do.,	½ Leicester, ...	½ Leicester, ...	
40	do.,	Bikanír, ...	Cross between ½ Lec. Ram and ½ S. D. Ewe	
63	do.,	Bikanír, ...	½ South Down, ...	
70	do.,	3rd Cross South Down,	Do. Do., ...	
		Making a Total of 524 Male Lambs, ...		

Number.	Sex.	Breed of Ewe from which the animal was got.	Breed of Ram from which the animal was got.	REMARKS.
		FEMALE	LAMBS.	
51	Female Lambs,	½ Leicester, ...	½ Leicester, ...	When old enough these will be transferred to Ewes.
9	do.,	Bikanír, ...	Cross between ½ Lec. Ram & ½ S. D. Ewes,	
31	do.,	3rd Cross South Down	South Down, ...	
101	do.,	Do. Do., ...	Half bred South Down,	
71	do.,	Bikanír, ...	Do. Do., ...	
13	do.,	Bikanír, ...	South Down, ...	
32	do.,	Bikanír, ...	½ Leicester, ...	
6	do.,	½ Lec. by Merino, ...	½ Leicester by Merino	
5	do.,	½ South Down, ...	Cotswolds Rams, ...	
3	do.,	½ Bred Cabúl, ...	½ South Down, ...	
		Making a Total of 322	female Lambs.	

Note.—162 Half South Down Ewes were transferred to the Stud Departments at Haupper and Saharunpúr.

Statement shewing the total number of births, deaths &c. of sheep at the Hissár Cattle Farm since the commencement of sheep Breeding.

YEAR.	Number of Lambs Born.	Number of Lambs Died.	Number sent out for district purposes.	Number of Lambs Sold.	REMARKS.
1864–65,	60	2	...	...	The distinction in Returns between Female Lambs and Male Lambs, has only been commenced two or three years ago. Hence the Office Records do not shew the Sex of the Lambs that were born, died, sold &c., &c.
1865–66,	202	14	...	50	
1866–67,	404	26	18	18	
1867–68,	380	28	58	...	
1868–69,	850	57	49	...	
1869–70,	598	61	89	317	
1870–71,	901	131	22	296	
1871–72,	580	156	...	184	

WOOL SOLD DURING THE LAST FIVE YEARS.							SHEEP SOLD DURING THE LAST FIVE YEARS.							
Year.	Quantity of Wool sold.			Amount received for Wool.			Year.	Number of sheep sold.	Amount received for the sheep.			Total amount in each year realized by wool and sheep.		
1867,	23	3	...	249	11	...	1867,	...	...	...	...	249	11	...
1868,	34	14	15	407	14	...	1868,	...	...	...	...	407	14	...
1869,	26	3	...	369	10	...	1869,	346	276	15	...	646	9	..
1870,	25	30	...	326	3	...	1870,	299	380	14	...	707	1	...
1871,	117	31	...	1,555	1	6	1871,	568	658	7	9	2,213	9	3
Total,	227	1	15	2,908	7	6	Total.	1,213	1,316	4	9	4,224	12	3

Keep of sheep during the last five years.

Year.	Cost of each years keep.			
1867,	1,030	3	3	Total amount realized during 5 years for wool, sheep &c., Rs. 4,224–12–3
1868,	1,750	4	11	Total amount expended in keep for 5 years, ... „ 8,127– 3–3
1869,	1,931	5	1	Difference between two sums, „ 3,902– 7–0
1870,	1,605	2	7	
1871,	1,810	3	5	
Total, ...	8,127	3	3	

From Captain G. F. Graham in charge of Hissár Cattle Farm to the Superintendent of Studs Mussoorie No. 166, dated 23rd August 1872.

In reply to your Office Docket No. 930, dated 19th August 1872, I have the honor to state that :—

1st. The South Down cross and their produce appear to carry the greater value as regards breeding, hardiness, wool ; are more prolific, and seem to stand the climate better.

2nd. The Leicester cross is good for wool, but leggy : and suffer much from the heat.

3rd. The Cotswolds cross is good for wool but weakly and suffer very much from the heat and more than the other breeds.

4th. The Merino cross is very small for breeding purposes, and the wool appears in the 2nd cross to loose its silkiness, and suffer much from the effects of the sun.

2. I hope the above will furnish the information called for. Mutton and wool being considered the great points, the latter seems to be fetching a larger rate every year, but the relative value of the breeds as regards mutton and fat is difficult to report upon, as the sheep are not killed.

MEMORANDUM BY F. HALSEY, ESQUIRE, AMRITSAR.

Dated 25th October 1872.

To column 2 of the Secretary Financial Commissioner's form, I am unable to give an answer, neither am I able to reply categorically to Nos. 3, 4 and 5. In 1872, I had however purchased 129 sheep (up to date) or against 142 in 1871 and 321 in 1869, the average cost per head has been Rs. 3, Rs. 2-9-7 and 2-8-0 respectively, shewing an increase of nearly 20 per cent.

Column 6—Consumption of mutton by natives.

There is little doubt to my mind, that there has been a very large increase of consumption by natives of late years ; but to what extent I cannot even guess. The returns from the local slaughter houses should shew this.

Mortality by diseases.

I have not heard that there has been any great mortality from disease, but I have been informed that numbers of sheep have died from starvation during the last three years. *At the present moment* there is, undoubtedly, considerable disease in the neighbourhood of Amritsar, but not more than is found in season when the rain fall has been considerably above the average; in 1869, a season of late rains, there was disease also.

Grazing grounds.

Immediately in the neighbourhood of Amritsar, in fact, any where within the influence of the canal, grazing grounds have been ploughed up to a very large extent. I am speaking from my own observation, within the last four years, but in my opinion there need be little alarm on this head, as most assuredly much of this land will soon revert to its normal state of scrub-jungle, as it never can stand two crops a year, and those, the same description of crop, taken year after year, as is now being done.

Diminution of supply and its causes.

I should say that an increased consumption and want of grazing ground were the immediate causes for a short supply in the *neighbourhood of Amritsar*, but I should doubt there being a great diminution of sheep taking the country collectively.

Remedies suggested.

The most practical remedy is, to pay more for our sheep, it may take a year or two, but make it worth the shepherds while and more sheep will appear, but at present prices of meat and wool, it is far more profitable to keep a sheep alive than sell it to the butcher. The present price of wool is Rs. 20 a maund, the rate in 1869, was Rs. 10 a maund, and even cheaper. Shepherds in debt may sell an animal for Rs. 2 and Rs. 2-8-0 which brings them in Re. 1-0-0 a year, but it is highly improbable that independent and provident shepherds will sell an animal at the above figures which will bring them in Rs. 5 or 6 and still be worth its Rs. 2-0-0 or Rs. 2-8-0.

Any one, who has travelled over the vast sheep walks of the Panjab, I refer to Chumba and British Lahoul, will there see, with his own eyes, how averse the shepherds are to sell their sheep and there is no want of them there. I suppose they can be counted by millions, and why, because wool is cheaper than Rs. 20 a maund and is sold and manufactured on the spot. If Government wish to have cheap mutton, it is towards British Lahoul their attention should be turned, for although the number of sheep to be found there every summer is already immense, nevertheless, that quantity is as nothing in comparison to the grazing ground available. Considerable numbers of these sheep are brought to Amritsar every winter, and there is a remarkable thing to be observed about them, they are all full mouthed *i. e.*, approaching the time when they will no longer yield an annual income, as when once the sheep has reached its prime the quantity of wool decreases. Let the local sheep brought to market be examined and it will be found few have more than 4 teeth. The reason for this has not to be looked for far, the hill shepherd is a well to do man, owing no one any thing, the plain shepherd on the contrary owns a few half-starved animals and owes more than he can ever sell them for.

From Colonel H. W. H. Coxe, Commissioner and Superintendent, Hissár Division, to J. A. E. Miller, Esquire. Secretary to Financial Commissioner, Panjab, No. 176, dated the 14th December 1872.

Supply of sheep.

* *Hissar* No. 384, dated 4th December 1872.
Rohtak, No 331, dated 9th Idem.
Sirsa, No. 263, dated 4th Idem.

With reference to your Circular No. 51, dated 5th October 1872, I have the honor to forward herewith the replies* of the Deputy Commissioners of this Division on the general subject of the supply of sheep, and also a report which has bee i kindly furnished me by the Superintendent of the Cattle Farm, Hissár, bearing on the particular subject of sheep breeding carried on by him.

The causes which have led to the diminution in the number of sheep.

2. On the main topic, the supply of sheep, the Deputy Commissioner Sirsa reports, that there has been no sensible diminution in the number of sheep in his District ; while the Deputy Commissioners of Hissár and Rohtak both remark on the decrease in their respective Districts, the former attributing the falling off to successive years of drought, and to deficiency of pasture consequent on increasing cultivation—and the latter, assigning the latter cause, and in some measure increased consumption of mutton among the natives. The present cost of the sheep appears to bear out the general correctness of the above statements, for while in Sirsa, where no deficiency is reported, the price has only risen from Re. 1-8 to 1-13-8 in the ten years ; in Rohtak and Hissár the increase in price has been nearly 100 per cent.

Sheep Fairs and how they should be managed.

3. The main remedy suggested in all three Districts, is the establishment of sheep Fairs at which prizes should be distributed to the exhibitors of the best stock ; and I agree with the Deputy Commissioner Hissár, that a standard number should be fixed, below which prizes should not be given. There would be little difficulty in arranging this, as cattle Fairs are holden in all three Districts ; and the exhibition of sheep might take place at the same time.

Deputy Commissioner of Rohtak's proposal of giving prizes and advances.

4. The Deputy Commissioner Rohtak states that the principal sheep keepers in his District are butchers and men of inferior caste, who have not the means of carrying on sheep breeding on a large scale, and who experience great difficulty in finding pasture for their flocks, from the constantly increasing area of cultivation ; and he proposes that encouragement should be given them by the distribution of prizes as above noted, and by making them money advances.

Money advances to sheep breeders, why not desirable.

5. I doubt the advisability of the latter scheme. Men of the class described by Deputy Commissioner are not likely to be in a position to furnish good security for the repayment of money advanced, nor would there be any guarantee, beyond a distant hope of profit, which would not weigh much with men who live from hand to mouth, of the advances being properly applied.

Government intervention in the matter of supply of sheep will be necessary.

6. It appears to me that the active intervention of Government will be necessary to provide against a possible serious falling off in the supply of so important a commodity.

The simple establishment of Fairs will not have the desired effect.

7. The establishment of Fairs will doubtless have some effect, but it will be a long time before it is readily appreciable, and if the deficiency of pasture is of so grave a character as represented, and liable, if the cause assigned for it be correct, to become greater every year, the sheep breeders of this

part of the country will not be able to raise, or to maintain flocks of sufficient size to present at the annual fairs.

Proposal as to how facilities for pasture can be given to the sheep breeders.

8. Facilities for pasture appear to be the first and principal requirement to ensure an increase in the number of sheep throughout this part of the country. I have been so short a time here that I am not in a position to speak with certainty on the subject, but I presume there must be abundance of waste land in the Division claimable by the Government, and in that case I would suggest that grass preserves should be formed and made available for sheep pastures. A small rate per head or per flock in a decreasing ratio to the number, would probably meet the cost of a small establishment for watch and supervision, and much assistance might be given, in this Division at least, by the occasional distribution of rams from the Government Cattle Farm at Hissár.

Without provision for pasturage the supply of sheep will ere long, be diminished.

9. I have only thrown out the above suggestion roughly. It might be easily elaborated I imagine, but I feel assured that without some provision for future pasturage there will be, ere long, a very appreciable diminution of the quantity and of the quality of the sheep throughout the province.

Sales of Wool.

10. The sales of Wool appear to be very limited, Hissar shows an export of 760 maunds in 1872, against 960 in 1871, while in Rohtak the out-turn was only 150 maunds, but against this is the statement of Wool sold last year at the Cattle Farm, which exceeded the sales of the previous 4 years. This shews that there is an increasing demand for the commodity, and should furnish a motive for enhanced exertion to the sheep breeders. The present price of Wool is Rs. 29 per maund, and the Superintendent of the Cattle Farm informs me that a sheep will produce about one sér per annum on an average.

Average price of sheep.

11. It will be noticed that the average price of sheep sold at the Cattle Farm during the last two years is very little over a rupee, but only the inferior and rejected animals are sold, and the Superintendent informed me that he showed some of these animals to a dealer from Dehli who would not take them at any price.

Bikanír Sheep.

14. I have only to notice in conclusion that the neighbouring tract of Bikanir is remarkable for the number of sheep it produces, and for their quality. It is to Ewes of this breed that the imported Rams are principally put at the Cattle Farm, and the produce is held in high estimation.

From Lieutenant Colonel C. H. Hall, Deputy Commissioner, Amritsar, to General R. G. Taylor, C. B., C. S. I., Commissioner and Superintendent, Amritsar Division, No. 20, dated 21st January 1873.

I have the honor to submit the report on the supply of sheep in the Amritsar District called for by Financial Commissioner's Circular No. 51 of 1872.

2. The subject, being an important one, I did not wish to submit a report based merely on Tahsildars' returns. I consequently postponed its submission until I could make personal observations in the District.

3. The accompanying return will show the approximate number of sheep in the district and the range of prices from 1863 to 1872. In ten years the price has increased 50 per cent. but this is not greater than the rise in prices generally. From personal observation, I should say that the number entered in the return is

rather under than over the mark. There are flocks of sheep in almost every village. The breed is a bad one; they are long legged, long tailed animals with coarse wool and do not promise good mutton.

Consumption of mutton by natives.

4. In the District the consumption of mutton has increased amongst the population of late years, but not to such an extent as to affect the supply. The consumption in the city of Amritsar however is very great. It amounts in round numbers, to 25,000 sheep per annum. The statistics for the city of Amritsar are interesting, I am indebted for the greater part of these to Mr. Nicholl, Superintendent of Meat Markets of whose memorandum on the subject, I append a copy. Some years ago there were only 2 Hindu and 50 Mahammadan butchers' shops in the city for sale of mutton, whereas now there are 10 of the former and 250 of the latter. I also submit a memorandum from Mr. Halsey on the subject to whom I also applied for such information as he could give me. Many points alluded to by him are borne out by personal knowledge of the matter and by the reports of natives in the interior of the District.

Mortality by disease.

5. This takes place in the rainy season; great losses occur every 2 or 3 years from this. The last occasion was in 1870-71 when sheep died from small-pox and rot in great numbers. Losses from actual starvation occur frequently. It is only the poorer classes who, as a rule, keep sheep, and when no grazing is obtainable, they having no means to feed their sheep, let them die.

Grazing grounds.

6. These are very limited in this District, all lands capable of production have been ploughed and Government Rukhs are not available.

Diminution of supply.

7. The diminution in the District is according to all accounts not very remarkable, but it must be noted that the supply of sheep for mutton is drawn from elsewhere; such diminution as has taken place is therefore, not due to increased consumption, but to the want of grazing grounds. In places where sheep are procured for consumption, I should with other causes ascribe a diminution in the supply, to the increased prices of wool which prevent the owners from selling their animals to the butcher.

Remedies suggested

8. Good prizes at fairs for the best score, 2nd best score, best single ram and ewe; these have not, hitherto, been given. Prizes have been offered for sheep at the Amritsar cattle-fairs, but very small amounts and have not attracted many competitors.

The result was so follows :—

		Sheep exhibited.
Baisakhi fair, ...	1871, ...	3
Diwali	1871, ...	4
Baisakhi, ...	1872, ...	5
Diwali, ...	1872, ...	2

These were Hill, and not District sheep. I would further propose that a system of advances be introduced to induce people to keep large numbers of sheep, security could be taken, and the flocks periodically inspected, the advances being repaid by degrees. I found this system answer admirably on a small scale in a District where the demand for fowls exceeded the supply greatly. In two years the District was stocked with fowls.

9. If such a system were introduced facilities for grazing should be afforded to shepherds.

Export.

10. Very little indigenous wool is exported from the District and that only white wool, in small quantities, but wool is brought in large quantities from Chamba, Kangrá, &c., and then re-exported to Bombay for shipment.

Statement shewing supply of sheep in the Amritsar District.

1	2		3	4	5	6					
	Probable number of sheep in the District.					Remarks regarding.					
District.	Male.	Female.	Average price of male sheep per head in 1872.	Price in 1868.	Price in 1863.	Consumption of Mutton by Natives.	Mortality by Disease.	Grazing grounds.	Diminution of supply and its causes.	Remedies suggested.	Statistics of export of wool.
Amritsar,	11,000	17,000	Rs. 3	2-8	2	*Vide* Dy.	Comm	r's. No.	20, dated	21st Ja	ny. 1873.

From Major C. A. McMahon, Deputy Commissioner, Dehli, to Lieutenant Colonel J. E. Cracroft, Commissioner, Dehli Division, No. 70, dated 23rd January 1873.

I have the honor to reply to your No. 12 of the 13th instant.

2. The following land might be made available for a sheep farm at Dehli—

I.	Old cantonments,	1,606	Acres.
II.	Land adjoining Do. beyond Nujjufgarh Jheel escape,	129	do.
III.	Under Military at Do.	191	do.
IV.	Under Forest Department in bed of River Jamna,	893	do.
		3,019	do.

3. Nos. I and II are in charge of the District Officer, No. I has yielded an average income from grazing of Rs. 1,128 per annum from 1867-1868 to 1871-1872. This income would of course be lost if the land was used as a sheep run.

4. No. III is under the Military. Part of it is used as a Ball pratice ground and part as an encamping ground. The authorities derive an income from grazing. They would no doubt be willing to rent this land to the Civil Department subject to its occasional use by them.

5. No. IV is under the charge of the Forest Department. It was made over to them about 3 years back for the formation of a Keekur plantation. Unless this land is properly managed, it is likely to become a nuisance to the station. I do not object to a Keekur plantation, on the contrary, I think, a plantation properly cared for, would be beneficial to the station; but it is indispensably necessary, that it should not be allowed to became a dense rank jungle of bushes and long grass. This would be objectionable from a Sanitary point of view and the jungle would moreover harbour wild beasts. It has already done so and a fine panther was shot the other day within a couple of hundred yards of your house.

6. The Forest Department should be required either to keep the plantation in proper order or to give it back to the District Authorities. In either case the

land should be made available for the grazing of sheep in the event of a Farm being established at Dehli.

7. I think the lands above detailed would constitute a good sheep Farm. The plots adjoin each other and they are close to Dehli. The latter is a material point with reference to the supervision of the Farm, and the sale of the sheep raised on the estate.

8. I see no reason why a sheep farm should not prosper at Dehli and be productive.

9. I think the Bikanír stock should be introduced and I deprecate the introduction of English Rams.

10. The importation of English Rams is exceedingly expensive. The cost of importation is very considerable, whilst the Rams will I believe rarely live through the hot winds.

11. I also doubt whether the English Cross is to be desired. It may improve the wool. Upon this point I have little information as the experiments at Hissár have not been conducted on scientific principles and no record of results has been kept up at the Farm there.

12. I apprehend moreover that the principal object the Panjab Government has at present in view is to raise mutton. Upon this point I am under a decided impression that the mutton of English half breds is not as good as that of pure Bikanír sheep. I have kept both at Hissár and found the flesh of the half English sheep was more coarse and stringy than that of the pure Bikanír sheep. The latter yields fine and good flavoured meat.

13. The Bikanír sheep is a fine animal and is one likely to thrive on the Western Bank of the Jamna.

14. The statement forwarded with your letter is herewith returned.

From George Davies, Esquire, Lahore, to J. W. Smyth, Esquire, Deputy Commissioner, Lahore, dated 28th January 1873.

In reply to your letter No. 186, dated 27th January 1873, enquiring whether the sheep farm established by me some years ago had succeeded or not, I have the honor to state, with regret, that it was a complete failure; to prevent misapprehension, however, I will endeavour to explain briefly the circumstances which led to this result.

When I conceived the idea of a sheep farm I made known my proposal to the late Sir Donald McLeod and Mr. Roberts, both took an active interest in the proposal and offered me every assistance in their power.

Being anxious to assure the Government that I was thoroughly in earnest, I purchased at once 1,000 ewes, I had them most carefully selected from the best breeds in the Gujránwála, Gujrát, Shahpúr and Firozpúr districts; they were very fine animals, short ears, bright eyes, moderately straight backs and small bellies, I paid an average of Rs. 3 each for them.

During the time that I was searching out suitable pasture land I placed the sheep in the Rukh running from the village Gurmut on the Multán line of Railway to the 8th mile Firozpúr road. In a very short time the grass failed, but I foolishly kept them there until I could fix upon a suitable place. I experienced considerable difficulty in getting land adapted to my purpose, many of the Rukhs that I applied for being either Forest land or promised to the late Mr. Landells, meanwhile the animals being only half fed were getting thinner and thinner daily. At last I fixed upon "Onluck," it had many disadvantages, the greatest was difficulty of getting water. In regular course it was made over to me on easy

terms for ten years (the average receipts from grazing of the preceding five years) I immediately had the sheep removed, but it was too late, they were already from bad pasture and from the heavy rain that fell that year, suffering from a complication of diseases, and amongst the number, foot rot, on the way down to Oulnck I lost 200 ewes although they were taking very short stages daily and fed with Bhoosa, I at once, when I discovered the disease, separated the healthy from the sick. But it seemed to have pregnated the whole flock and they all died out within a year. In the meantime I had erected sheds and enclosures and had received 10 Rams from the Hissár farm. Believing that the farm only needed proper management to ensure its success I bought up 800 more ewes, but this time from the Lahore District chiefly, as I thought it possible that the removal from one part of the province to the other may have affected them. The last lot throve very well for the first year and at one time I had 600 lambs, apparently healthy and strong, all the offspring of the Hissár Rams. The improvement in the breed was patent to every one. The shape of the lambs was decidedly better than their dams, the wool larger and more curly, the eyes brighter, and the backs straighter than any sheep in the district, so marked was the improvement that the zemindars gladly offered payment for the use of the rams for their own sheep. I was at this period so sanguine of success, that I obtained permission from Mr. Griffin who was at the time Deputy Commissioner of the District, to raise crops on part of the land for my own use, I had also collected quantities of Bhoosa and hay, but after a month of almost constant rain, the same disease that carried off the first lot made its appearance amongst the second. It began with the lambs. I have followed them through the Rukh the whole day watching the effect of the disease, and endeavouring to counteract the disease by stimulating food, &c. yet in spite of every effort, good protection and abundance of Bhoosa, with black salt and baths, they died 100 and more daily. When the disease first made its appearance, I at once removed the apparently healthy ones from the sick and erected sheds some three miles away to which I removed all the healthy, but nothing seemed to do them good. They would leave the sheds in the morning after the sun was well up (when it rained I kept them under cover, all day feeding them with Bhoosa) and suddenly without any previous notice they would be seized with a violent purging of a black substance, after a short time they would stagger and die from shere exhaustion. I brought in some of the livers, and Doctor T. E. B. Brown very kindly examined them for me, but they were apparently quite healthy. Within two months my stock was reduced to 200. I again made them up to 500 ewes, but they never seemed to thrive. My funds being exhausted I reluctantly sold the 220 that were left for Rs. 200 and returned the land to Government.

I attribute my want of success to two causes mainly. My eagerness in purchasing a large stock of sheep without having first prepared for their reception and pasture although fed with Bhoosa, they needed more space and pasture, secondly my inability to be always present myself, and although I had a large number of trustworthy servants, they were quite incompetent to manage so large an undertaking. My second failure, is owing I think to my not having removed the new stock to a new place, and lastly want of funds to withstand a series of losses quite beyond my temperament to contemplate. I am still firmly of opinion that sheep breeding can be carried on successfully, with profit to the individual and the Province, if some one with more time experience and money than I possess took to it heartily.

If there is any further information that I can afford you at any time, I shall be always happy to do so. In conclusion I will merely remark that so satisfied am I of the ultimate success of sheep breeding in the Panjab that I will again (as soon as I can manage to saye some funds) renew my experiments on a smaller, but I am sanguine enough to believe, more successful plan.

From Major General R. G. Taylor, C. B., C. S. I., Commissioner and Superintendent, Amritsar Division, to J. A. E. Miller, Esquire, Secretary to Financial Commissioner, Panjab, No. 39—288, dated 7th February 1873.

In reply to your Circular No. 51, dated 5th October 1872, I have the honor to submit the District reports regarding the supply of sheep, in original, and to offer the following remarks :—

2. I consider it clear from the District reports that the evil apprehended exists to a certain extent in this Division, and may increase.

I allude to a diminution in the supply of sheep for mutton.

But I cannot help thinking that a remedy is not far off. The mountains that fringe the Panjab in its whole length swarm with fine flocks of sheep and goats for which they afford unlimited pasturage. But the owners of these flocks are rude and ignorant and will not of their own motion bring them down to the plains or fully utilize them where they are.

3. What is wanted is a system by which their sheep may be purchased and brought down for the use of the troops. Wealthy native contractors, I believe to be the most efficient means for accomplishing this end. The system had its evils, I allude to the old commissariat system, but for a difficulty of this sort (and possibly it may be my belief for the strain of war) it was I am inclined to think the most efficient and as in the matter of the purchase of kine for food, all the arrangements would be made in a manner consonant with the feelings and prejudices of the classes concerned which is not always the case when the Commissariat Department in the present day is engaged in making purchases of cattle in native states and elsewhere.

No. 397, dated 22nd April 1873.

From Secretary to Financial Commissioner, Panjab, to the Secretary to Government, Panjab.

In reply to No. 1356, dated 13th September last, submits a general statement containing the statistics regarding sheep in the Panjab, called for by the Supreme Government, with copy of a memorandum recorded thereon by the Officiating Financial Commissioner.

Memorandum by P. S. Melvill, Esq., Officiating Financial Commissioner of the Panjab, on the Supply of Sheep in the Panjab.

The annexed statement contains information on the following points, *viz* :—

(1).—The number of sheep in each district.
(2).—Prices of sheep.
(3).—Consumption of mutton by natives.
(4).—Mortality by disease.
(5.)—Grazing grounds.
(6.)—Diminution of supply, and its causes.
(7.)—Statistics of export of wool.
(8.)—Remedies suggested for increasing the supply.

I.—The Number of Sheep.

2. There are 459,774 male (rams and wethers) and 1,781,243 ewes in the Panjab. The total number is 2,241,017.

3. The numbers in each division are as follows :—

Dehli, 67,177.—The largest number in any district is in Karnál ; but this is not a large sheep-producing district.

Hissár, 102,337.—Sirsa and Hissár produce extensively.

Ambálah, 113,756.—Ambálah and Simla have large flocks.

Jálandhar, 180,379.—Of this number 133,000 appertain to Kangrá, which is one of the chief sources of supply in the Panjab.

Amritsar, 87,906.—Siálkot has the largest number; but this is not a sheep-breeding division.

Lahore, 174,173.—Lahore has 68,000, and Firozpúr 61,000.

Ráwalpindi, 465,045.—Ráwalpindi, Jhelam and Shahpúr all produce largely.

Multán, 618,775.—Jhang has the largest number; Multán and Montgomery are also good producing districts.

Deraját, 261,794.—Derah Ismail Khan and Derah Ghazi Khan have both large stocks.

Peshâwar, 169,675.—Peshâwar and Hazára are the chief producers.

4. The countries Cis-Indus having the largest and best stocks of sheep are—

(1).—The Himalayas and the hill country lying between them and the plains (Simla, Kángra, Hushiarpúr, Ráwalpindi and Hazára Districts).

(2).—That portion of Harriana which lies within the boundaries of the Hissár and Sirsa Districts.

(3).—The bár jungle between the Satlaj and the Jhelam (the Montgomery, Multán, Lahore, Gujránwála, Jhang, Shahpúr and Jhelam Districts).

(4).—The body of the Ráwulpindi District, which is more or less hilly, and the Salt Range.

(5).—The Cis-Indus *Thal* of the Shahpúr and Dera Ismail Khan Districts.

5. Trans-Indus, the Districts of Derah Ghazi Khan and Dera Ismail Khan have not only considerable stocks of sheep, but, in the case of Derah Ghazi Khan at least, large numbers are brought from the hills beyond the frontier, whence also droves of a very fine breed of cattle are constantly arriving. Bannú and Kohát have no sheep to speak of. Peshâwar is an important District, though in a less degree than many others. The Ambálah and Muzaffargarh Districts are also of value, but to a minor extent.

II.—Prices of Sheep.

The following is a statement of the average price per head of male sheep in each Division :—

		1863.	1868.	1872.	
Dehli	Rs.	1 8 8	1 13 0	2 1 0	Greatest increase in Gurgáon.
Hissár	,,	1 2 0	1 8 0	1 13 0	Very little increase in Sirsa.
Ambálah	,,	1 15 0	2 6 0	2 10 0	Greatest rise in Simla, where the price is Rs. 4.
Jálandhar	,,	1 15 0	2 5 8	2 12 0	Greatest rise in Jálandhar, where price is Rs. 3-8-0.
Amritsar	,,	1 13 0	2 3 0	2 12 0	Greatest rise in Siálkot.
Lahore	,,	1 8 0	2 3 0	2 7 0	Do. in Firozpúr.
Ráwalpindi	,,	1 11 0	1 15 0	2 5 0	Do. in Jhelam.
Multán	,,	1 4 0	1 6 0	1 10 0	Do. in Jhang, but the price in that District in 1863 was very low *viz.*, 12 annas.
Deraját	,,	1 9 0	2 1 0	2 6 0	Greatest rise in Bannú.
Peshâwar	,,	3 5 0	3 15 0	4 0 0	Do. in Kohát.

6. The percentage of rise in prices of sheep and of wheat are here given for each Division :—

Division.	Sheep.		Wheat.		Barley.		Joar.	
	Per cent. rise in 1868 over 1863.	Per cent rise in 1872 over 1868.	Per cent. rise in 1868 over 1863.	Per cent. rise in 1872 over 1868.	Per cent. rise in 1868 over 1863.	Per cent. rise in 1872 over 1868.	Per cent rise in 1868 over 1863.	Per cent. rise in 1871 over 1868.
Dehli ...	17·5	13·8	45·8	Increase. 18·8	48·0	Increase. 7·8	50·0	Decrease. 10·0
Hissár ...	33·3	20·8	46·3	10·5	41·2	15·7	24·5	Increase. 36·5
Ambálah ...	22·6	10·5	52·0	0·0	123·1	Decrease. 14·1	62·2	Decrease. 50·0
Jálandhar ...	22·6	16·8	84·9	Decrease. 19·0	66·6	20·3	100·0	33·0
Amritsar ...	20·7	25·7	94·2	19·0	114·8	Increase. 4·0	90·0	11·7
Lahore ...	45·8	11·4	68·4	11·1	92·5	Decrease. 2·0	114·6	11·3
Ráwalpindi	14·8	19·4	91·3	Increase. 10·0	110·7	9·0	80·3	14·2
Multán ...	10·0	18·2	35·1	31·5	100·0	3·0	21·7	Increase. 20·0
Deraját ..	32·0	15·1	45·2	30·8	52·8	33·0	26·7	33·0
Peshávar ..	18·9	1·6	65·9	22·5	106·1	Increase. 8·0	132·5	Decrease. 41·9

It thus appears that the rise in the price of sheep has not been so great as that of the common food grains of the people.

III.—Consumption of Mutton by Natives.

7. The reports shew that there has been a decided increase under this head in the Rohtak, Lahore, Gujránwála, Ráwalpindi, Derah Ismail Khán and Bannú Districts, and also in the Lahore and Amritsar Districts. The increase in the Lahore and Amritsar Districts is chiefly attributable to the cities of those names. An increase is also alleged in the Gurdáspúr District, but the accuracy of this is somewhat questionable.

8. In the Districts of the Dehli and Jálandhar Divisions and in the Firozpúr District the natives consume very little more mutton now than formerly. In the Sháhpúr and Muzaffargarh Districts no such increased consumption is observable. No information is given in regard to the Districts noted in the margin.

Ambálah Division	Jhang.
Siálkot.	Montgomery.
Jhelam.	Derah Ghazi Khan
Gujrát.	Peshávar Division.

9. My opinion is that without doubt the natives, being more prosperous and living in a far more liberal way generally than they did at the commencement of our rule, do eat more flesh of sheep and goats than formerly. With the exception of the Muhammadan Frontier Districts goats are preferred by natives to sheep.

IV.—Mortality by Disease.

10. The following is an abstract of the reports for each Division :—

Dehli.—10 to 25 per cent. die yearly from small-pox and other disease.

Hissár.—About 6 per cent. died from epidemic disease in the previous year in the Hissár District. Epidemics sometimes visit the flocks of the Rohtak District. There is not much mortality by epidemics in Sirsa, but deaths occur from want of fodder in years of drought.

Ambálah.—16 per cent. in Ambálah; 3 per cent. in Ludiánah; 38 per cent. in Simla.

Jálandhar.—In Jálandhar 8 per cent. Murrain and ordinary disease carries off sheep, but not in great numbers, in Hushiárpúr; and in Kángra there is "very little or no mortality by disease." This offers a curious contrast to Simla, where the conditions of ovine life must be similar.

Amritsar.—For the Amritsar District no figures are given, but murrain (notably small-pox) causes great losses every second or third years. Deaths from starvations frequently occur owing to failure of pasturage. From Siálkot the return is "no epidemic;" and in Gurdáspúr the percentage of deaths from disease is 15.

Lahore.—In Lahore 5 per cent. In Firozpúr "many sheep die in rains of a disease called 'hungâ.'" In Gujránwála the ordinary mortality of the yearly produce is 33 per cent., reaching to 50 per cent. when small-pox breaks out.

Ráwalpindi.—Ráwalpindi, 15 per cent.; Jhelam, 2½ per cent; Gujrát, 2 per cent.; and in Sháhpur "the mortality from disease and wild animals is considerable, being calculated at 25 per cent.; but much is due to carelessness."

Multán.—Multán, 2 per cent.; Jhang and Montgomery, 7 per cent. each; and Muzaffargarh 10 per cent.

Deraját.—No statistics are given for this Division. Various epidemics are said to visit Dera Ismail Khan; and in Bannú drought and consequent failure of pasture have caused considerable mortality.

Pesháwar.—11 per cent. in Pesháwar; 16 per cent. in Kohát; and 4½ per cent. in Hazára.

11. It is clear that no reliance can be placed on the figures given. The fact, however would seem to be that there is a very large mortality from epidemic diseases of various kinds, the treatment of which is believed not be understood or even attempted; and that these epidemics commonly occur in the rainy season, when, owing to the absence of proper shelter, the animals rapidly die off. The case of Mr. G. Davies' attempt to establish a sheep farm, appended to this paper, is an instance of the extreme uncertainty of sheep rearing, and of the liability of sheep to epidemics.

V.—Grazing Grounds.

12. The diminution of these grounds is assigned as one reason for the falling off in the supply of sheep. This is true in regard to the more highly cultivated districts; but the diminution can hardly be said to exist in the great pasturages of the Himalayas, the Bár and the Cis-Indus Thal The following is an abstract of the information given for each Division :—

Dehli.—The waste uncultivated lands in villages are alone used.

Hissár.— Do. In Sirsa the land-owners charge a fee of one anna per head of sheep per annum for grazing in village lands.

Ambálah.—As in the Dehli Division. But in Simla there must be plenty of grazing in the hills belonging to the various Chiefs.

Jálandhar.—In Jálandhar the village waste land only is used. In Hushiárpúr there is extensive grazing in the hills between the Beas and the plains. In Kangrá there are vast pasture lands on the higher slopes of the Himalayas and in the District generally. But sheep-keeping is confined to the Guddis, who take their flocks to Lahoul and Spiti in the summer, and return to Kangrá for the autumn and winter months.

Amritsar.—As in Dehli.

Lahore.—In parts of Lahore and Gujránwála there is extensive grazing to be found in the Bar. There are also Government rakhs or preserves, in which grazing is obtainable on the payment of moderate fees. The return from Firozpúr is simply "not sufficient."

Ráwalpindi.—In Ráwalpindi and Jhelam there is plenty of pasturage,—1st, in the ordinary village wastes, as in Dehli; 2nd, in lands reserved for grazing at the settlement, in the case of villages adjoining Government Rakhs; 3rd, in Government rakhs, on payment of a small fee. In Gujrat the grazing is on village waste lands and in Government Rakhs; and in Shahpúr there is ample pasturage in villages and in the lands of the Bar and Thal.

Multán.—There is ample pasturage in the division in—1st, village lands; 2nd, the Government wastes and rakhs.

Deraját.—In Bannú the waste village lands seem to be the only grazing grounds. In Derah Ismail Khan, besides similar grounds, there is the extensive Cis-Indus Thal. In Derah Ghazi Khan there are large Government rakhs and extensive pasturage within village boundaries; and there is also fine pasturage in the frontier hills.

Peshávar.—In Kohát the state of affairs appears to be pretty much what it is in Bannú. In Pesháwar it is said that sheep are grazed in different grazing grounds in each Illaka. In Hazára there is, I believe, plenty of grazing to be found within village boundaries all over the District. In addition, there are about 400 acres in different parts of the district.

VI.—Diminution of the Supply of Sheep, and its Causes.

13. The following is an abstract of the information given for each Division:—

Dehli.—In Dehli and Gurgáon there is a diminution of supply, owing to the cultivation of waste lands and the consequent scarcity of grazing, and to the great demand in our large Military Stations at Meerut and Dehli. In Karnál it is said that the stock of sheep is not lower than in previous years.

Hissár.—There is a decrease of sheep in Rohtak, owing to the breaking up of waste land; but this has never been a sheep-breeding district. In Hissar there is also a diminution within the last three or four years, owing to drought, and partly also to the extension of cultivation. In Sirsa it is said that there has been no diminution of supply, the demand being limited.

Ambálah.—The Deputy Commissioner of Ambálah states that there may be a diminution of supply, but that there is no evidence that such is the case. He does not think that the price of sheep has risen in the last five or ten years in greater proportion than the rise of prices generally. In Ludiánah and Simla a decrease of supply is stated, but the reasons for this opinion are not given, though the cause of the decrease is assigned as being the scarcity or bad quality of forage. The Deputy Commissioner of Simla also gives "the general use of cotton cloths and not woollen as formerly" as another cause.

Jálandhar.—In Jálandhar and Hoshiárpúr a diminution is assumed to exist. The Deputy Commissioner of Hoshiárpúr says that "the number is considerably reduced during the last ten years." The causes assigned are—(1) the increased consumption of mutton which "is caused (in the case of natives) to some extent by the decrease in the number of slaughter-houses for kine." The presumption here is, that if beef were more readily procurable by Muhammadans there would be a less consumption of mutton by people of that persuasion; (2) by the want of care in keeping the sheep. In Kangrá there has been no diminution of supply within the last ten years.

Amritsar.—The Deputy Commissioner of Amritsar believes that there has been no great diminution; that whatever diminution has occurred is due to the want of pasturage. The supply of sheep is imported. The Deputy Commissioner of Siálkot implies the existence of a decrease in supply owing to insufficient grazing ground. As to Gurdáspúr, it does not appear whether the supply has fallen off.

Lahore.—A diminution of supply is reported to exist throughout this Division owing to—(1) increased consumption; (2) epidemic disease; (3) increase of cultivation. The Deputy Commissioner of Lahore also gives the absence of a cattle fair in that District as one cause.

Ráwalpindi.—In the Ráwalpindi, Jhelam, and Gujrát Districts a diminution of supply is alleged. The reasons given are—(1) increased cultivation; (2) the increased consumption by natives in consequence of their improved condition; (3) the greatly increased demand for the supply of the many military stations; (4) mortality. The Deputy Commissioner of Ráwalpindi also assigns another reason, *viz.*, "the great restrictions imposed by the Forest Department upon grazing." In Shahpúr, no diminution is believed to have occurred.

Multán.—In the Multán and Jhang Districts, a diminution is reported; but in Montgomery the supply is said to be increasing and in Muzaffargarh there is no diminution in a part of the District. The Deputy Commissioner of Multán gives the following reason for a diminution in that District, *viz.*, that cultivation with canal irrigation is more lucrative and safer than sheep-farming, and that therefore in time a further falling off in the herds may be expected. The decrease in Jhang is ascribed to drought and disease; and the same causes are attributed to the decrease in a part of the Muzaffargarh District. The increase of sheep in Montgomery is attributed to "the increased price of wool and the large demand for the commodity. Sheep hides are also increasing in price, but the supply available for sale is decreasing, as owners find it more profitable to keep sheep for wool and hides and milk than to sell them to traders."

Deraját.—In Derah Ismail Khán the number of sheep has not diminished; "on the contrary, breeders are making strenuous efforts to keep the supply equal to the demand." The Thal of this District "now sends yearly large flocks to all parts of the Punjab at *treble* the price formerly realized." The price per head has risen from Rs. 1-7-2 in 1863 to Rs. 2-1-7 in 1872. In Derah Ghazi Khán also there is no "apparent diminution." Numbers of sheep "are brought in for sale from the hills beyond the frontier." A decrease of supply is assumed in Bannú owing to increased consumption by natives and the military, mortality, and the increase of cultivation.

Peshúwar.—The local officers do not say whether there has been any diminution of supply.

14. It will be observed that there are no statistics to shew whether the number of sheep is really less now than it was formerly. The consumption of mutton has increased enormously of late years, more especially amongst the European troops. Grazing lands have been much curtailed in parts, and where this has occurred it may fairly be concluded that the number of sheep has fallen off, because in highly cultivated parts of the country sheep are usually kept by menial castes and not by the land-owners. I am not aware that murrain are more frequent now than formerly. It is possible, and indeed it appears to be very probable, that the increased price of wool has deterred sheep-owners from selling their stock. The ordinary yearly yield of wool per sheep is said to be a little over two pounds, and the value of this at current rates would be about one rupee. It is manifestly more profitable for a man to keep a sheep, which gives him a return of one rupee per annum, than to sell it for Rs. 2 or Rs. 2-8-0. Although in parts of the Panjab the number of sheep may have decreased, I am not convinced that there has been any general decrease.

15. The difficulty experienced by the Commissariat in obtaining mutton for the troops may be owing to unwillingness to pay a sufficient price, or to some fault in the manner of dealing with the owners. If British Officers attempt to buy direct, they are pretty sure to fail; for the underlings will extort a portion of the price paid to the sellers, who, moreover, are subjected to journeys and detention. If the assistance of the Civil District Authorities is invoked, the sheep will be obtained, but the result will be to ruin the market. Under such circumstances an arbitrary price is often fixed, and the full sum paid by Government does not reach the hands for which it was intended. The only plan which seems to me feasible is to employ contractors, who go to the pasturages and make their own terms with the sellers whom they pay on the spot.

VII.—Export of Wool.

16. An abstract of the information given on this head for each division is furnished below :—

Delhi.—Dehli—Slight export to Najíbábad and Muzaffarnagar; mostly consumed in District. Gurgáon—Nearly all consumed at home. Karnál—500 maunds produced; one-half exported.

Hissár.—Hissár—750 maunds, average production of three years, exported to Rohtak and Karáchi; Rohtak—150 maunds, mostly exported to Dehli and Ambálah; no wool worked in District. Sirsá—Exported to Karáchi; quantity not ascertained.

Ambálah.—Ambálah—Consumed at home. Ludiánah—50 maunds, exported; Simla—648 maunds, exported.

Jálandhar.—Jálandhar.—Consumed at Home. Hoshiárpúr—Ditto, but manufactured blankets are exported. Kangrá—One-fourth of wool produced is exported, but more is imported from Chamba.

Amritsar.—Amritsar—Very little of home growth is exported; comes from Chamba and Kángra, and is re-exported to Bombay for shipment. Siálkot—Consumed in District. Gurdáspúr—Ditto.

Lahore.—Lahore—887 maunds exported last year. Fírozpur—1,700 maunds yearly. Gujránwala—1,200 maunds to Karáchi.

Ráwalpindí.—Ráwalpindi.—2,000 maunds from tracts near Indus, exported last year. Jhelam—770 maunds yearly. Gujrát—400 maunds this year. Shahpúr—4,000 maunds to Karáchi.

Multán.—Multán—2,700 maunds yearly. Jhang—1,347 maunds. Montgomery—Unknown quantity exported to Bombay. Muzaffargarh—3,850 maunds exported to Multán and Sakkar.

Deraját—Derah Ismail Khan—7,700 maunds in past year to Multán and Karáchi. Derah Ghazi Khan—952 maunds exported. Bannú—*Nil.*

Peshávar.—Pesháwar—730 maunds annually. Kohát—*Nil.* Hazára—Very little exported.

17. It thus appears that the chief exporting districts are Hissár, Sirsa, Simla, Kángra, Firozpúr, Lahore, Gujránwála, Ráwalpindi, Jhelam, Shahpúr, Multán, Jhang, Montgomery, Muzaffargarh, Derah Ismail Khan, Derah Ghazi Khan, and Pesháwar; and that, with the exception of Simla, of which the produce probably goes to the North-West Provinces, the exports chiefly find their way to Karáchí for conveyance to Bombay and Europe.

18. Although it is a fact that the export of wool from India to the United Kingdom has much fallen off* during the years 1856 to 1870, yet it is not apparent that there has been any such falling-off in the export of wool from the Panjab. The only statistics at our disposal are those which have been registered at different parts of the Panjab during the last few years. The figures for 1868-69 to 1871-72 will be found appended hereto. The same wool has been entered more than once—an error which is unavoidable under the circumstances of the registration of the statistics. The return, however, may be safely taken as indicating a general increase in the wool trade.

* See table at pages 36 and 37 of Statistical Abstract for the several colonial and other possessions of the United Kingdom in each year from 1856 to 1870.

VIII.—Remedies suggested for Increasing the Supply of Sheep.

19. Although I do not consider that the stock of sheep has generally decreased, it is still advisable to take such measures as may be likely to keep up the supply with the ever-increasing demand. The various measures suggested by the local officers are now to be considered. The following proposals do not commend themselves to my judgment in so far as any action on the part of Government is concerned :—

(1.) To give advances to breeders.
(2.) To provide shelter in the rainy season.
(3.) To discourage the slaughter of lambs.
(4.) To forbid the purchase of ewes for slaughter.
(5.) To make each lambardar of a village keep up a small flock of sheep.
(6.) To induce European settlers to establish farms in the Himalayas, as, for instance, at Kangrá—a proposal regarding which it is sufficient to say that no European could compete with the herdsmen of the hills.

20. The proposed measures which deserve consideration are the following :—

(1.) *To establish Government sheep farms.*—The Commissioners of Delhi and Ráwalpindi and the Deputy Commissioners of Ráwalpindi and Bannú advocate this measure. There are about 3,000 acres at Delhi said to be suitable for a sheep run, but the greater part of this land is under the Military Authorities. It is also stated that there is land available at Balabgarh. Beyond this it does not appear that there is suitable land elsewhere. I would remark that in my opinion the Government should not attempt anything of the kind. The sheep farm at Hissár, being joined to the cattle farm and placed under very favorable conditions, is, I believe, successful; but I would not advocate the extension of the experiment. The supply of sheep had far better be left to the natives of the country.

(2.) *To increase the pasturage.*—This can be done by throwing open the Government rakhs or preserves free. I question the expediency of such a step. It is not desirable to enter on the bounty system, which this in fact would be. The profits derivable from sheep-breeding are well understood by those who follow this occupation in the tracts which carry large flocks, and in those tracts there is no want of pasturage. In the highly-cultivated districts of the Panjab it is not possible to provide grazing beyond what exists; and the tendency of the people is to reduce even the existing waste lands. My opinion is that nothing should be done under this head.

(3.) *To provide good rams.*—This is a measure which has already been accomplished to some extent, but it may with advantage be made of more general application. The importation of English rams I regard as unadvisable, as they succumb to the climate. At the Hissár Farm the experiments have shown that a cross* between the South Down and Leicester ram and the Bikanír ewe is the best animal; and I would, for the present, rely on this farm for the supply of rams to the Panjab.

* See letter of Superintendent, Hissár Farm, No. 145, dated 12th Augt. 1872.

(4.) *To encourage importation from Lahoul.*—This is indicated by the Commissioner of Jálandhar (Colonel Coxe) and by Mr. F. Halsey of Amritsar. Lahoul is the summer grazing-ground of vast flocks, which are brought to the lower hills for grazing in winter. By dealing with the owners of the flocks at the places where they are to be found during the winter months very large supplies of sheep would be permanently procurable, but good prices must be paid.

(5.) *To establish fairs and prizes for sheep.*—This is the proposal which is supported by the largest number of officers. I think that it would not be practicable to establish fairs exclusively for sheep, save in some exceptional cases. Cattle fairs are held at the places and on the dates noted in the margin, and I would recommend that prizes be established at each of these fairs for sheep. There are three points to be encouraged, *viz.* number, meat, and wool. Improvement of wool by crossing with the Merino ram appears to deteriorate the size, and moreover the wool loses its fineness in the second generation—(see Superintendent Hissár Farm's Nos. 145, dated 12th August 1872, and 166, dated 23rd Idem, appended). The prizes should be arranged so as to encourage the exhibition of numbers, and of sheep noted for meat-bearing as well as for fineness of wool. No scale of prizes appears to me to be more suitable than that lately proposed* for sheep at the Amritsar fairs, *viz*:—One prize each of Rs. 100, Rs. 50 and Rs. 25 respectively for pens of ten wethers. Prizes on this scale or on some analogous scale, might be granted for sheep at each cattle fair. In Districts where there are no cattle fairs special sheep fairs might be established where there seems to be a fair chance of success. I doubt whether the proposition made by two or three Deputy Commissioners to give prizes to *Zemindars* bringing the largest number to market would be advisable. As a rule, the land-owners do not keep sheep. The best plan would be to give the prizes at fairs to the owners whoever they may be.

Gurgáon, March and September.
Hissár, March and October.
Rohtak, April and October.
Sirsa, latter part of August.
Jálandhar, June.
Amritsar, 11th April and in November.
Siálkot, during the Dasserah.
Gurdáspúr, ditto.
Firozpúr, January.
Gujránwála, 11th April.

* No. 151-1173, dated 18th February 1872, from Secretary to Financial Commissioner, to Secretary to Government.

21. There is one point that I feel bound to again allude to, *viz.*, the absolute necessity for leaving the market free. Civil Officers should be interdicted on pain of severe displeasure from using their authority in buying sheep. If a Tahsildár or other executive officer receives an order to buy sheep or anything else for his superior, the price paid is commonly too low, people are forced to part with their property, and the market is damaged. There is nothing so surely repressive of production as this.

22. With reference to the predilection of the largest section of the inhabitants of the Panjab for goats' flesh, it is a question whether prizes should not also be given at fairs for goats. Anything which may tend to increase the production of goats will tend to decrease the consumption of sheep.

23. To sum up. My opinion is—

(1.) That consumption of mutton by all classes, Native and European, is rapidly on the increase.

(2.) That there is no general diminution of the stock of sheep in the Panjab, though probably there is a decrease in the more highly cultivated districts, owing to the extention of cultivation.

(3.) That the only measures that Government should take are to give good rams to the people, and to encourage production of sheep by the award of suitable prizes at fairs.